PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

THOMSON, Clive B.
GlaxoSmithKline
Corporate Intellectual Property
980 Great West Road
Brentford
Middlesex TW8 9GS
GRANDE BRETAGNE

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Rule 71.1)

Date of mailing *(day/month/year)*	30.07.2004

Applicant's or agent's file reference JAF/PG4979	**IMPORTANT NOTIFICATION**	
International application No. PCT/EP 03/12035	International filing date *(day/month/year)* 24.10.2003	Priority date *(day/month/year)* 28.10.2002
Applicant GLAXO GROUP LIMITED et al.		

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.

2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.

3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Roche, S Tel. +49 89 2399-8031

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference JAF/PG4979	**FOR FURTHER ACTION**	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/EP 03/12035	International filing date *(day/month/year)* 24.10.2003	Priority date *(day/month/year)* 28.10.2002
International Patent Classification (IPC) or both national classification and IPC C07C317/22		
Applicant GLAXO GROUP LIMITED et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

   ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the opinion
   - II ☐ Priority
   - III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
28.04.2004	30.07.2004
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Romano-Götsch, R Telephone No. +49 89 2399-8874

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP 03/12035

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:

Description, Pages

1-69 as originally filed

Claims, Numbers

1-21 as originally filed

Drawings, Sheets

1/3-3/3 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

   These elements were available or furnished to this Authority in the following language: , which is:

   - ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
   - ☐ the language of publication of the international application (under Rule 48.3(b)).
   - ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

   - ☐ contained in the international application in written form.
   - ☐ filed together with the international application in computer readable form.
   - ☐ furnished subsequently to this Authority in written form.
   - ☐ furnished subsequently to this Authority in computer readable form.
   - ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
   - ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

   - ☐ the description, pages:
   - ☐ the claims, Nos.:
   - ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

   (Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

   ☐ the entire international application,

   ☒ claims Nos. 15

   because:

   ☒ the said international application, or the said claims Nos. relate to a method of treatment of the human body, i.e. relate to the following subject matter which does not require an international preliminary examination (specify):

   see separate sheet

   ☐ the description, claims or drawings *(indicate particular elements below)* or said claims Nos. are so unclear that no meaningful opinion could be formed *(specify)*:

   ☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

   ☐ no international search report has been established for the said claims Nos.

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

   ☐ the written form has not been furnished or does not comply with the Standard.

   ☐ the computer readable form has not been furnished or does not comply with the Standard.

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-21
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-21
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-14,16-21 (15: no opinion)
	No:	Claims	

2. Citations and explanations

see separate sheet

Reltem III
No establishment of opininion

For the assessment of the presently worded claim 15 on the question whether they are industrially applicable, no unified criteria exist in the PCT. The patentability can also be dependent upon the wording of the claims. The EPO, for example, does not regard as industrially applicable claims to the use of a compound in medical treatment, however will allow claims to a known compound for first use in medical treatment and the use of such compound for the manufacture of a medicament for a new medical treatment.

Re Item V
Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

The following documents are referred to in this communication:
D1: WO-A-02/066422 -PG4396
D2: GB-A-2 140 800 - 85082

1. The present application meets the requirements of Art. 33(2) PCT because the claimed matter 1-21 is novel.

   D1, which is regarded as the closest prior art, discloses phenethanolamine derivatives, which differ from the claimed compounds in that the substituent R1 is a sulphonamide of formula R1= -SO2NR6R7 (see p.1, lines 30-35, with X=(CH2)p and p=0), while R1 in the present application is a sulphonyl, sulphinyl or thio group of formula R1= -SR6, -SOR6 or -SO2R6.

   D2 describes phenethanolamine derivatives which differ from the compounds on file in that the group Ar in D2 cannot carry any of the substituents -SR6, -SOR6 or -SO2R6 as in the application (see p.1, lines 47-51).

2. The present application meets the requirements of Art. 33(3) PCT because the claimed matter 1-21 is regarded as involving an inventive step.

   Departing from D1, the problem to be solved by the application is the provision of new phenethanolamine derivatives useful in therapy and/or prophylaxis of respiratory diseases.
   The solution proposed in the application, consists in the compounds of formula (I) which correspond to the compounds of Formula (I) of D1 where R1= -XSO2NR6R7 has been replaced by any of -SR6, -SOR6 or -SO2R6.

D1 is silent about the possibility of eliminating the amide group of the sulfonamide and yet obtaining an active compound. Furthermore, the steric requirements of a sulfonamide group are profoundly different from those of the groups -SR6, -SOR6 or -SO2R6 of the application.
Therefore, an inventive step for claims 1-21 has been acknowledged.

In view of the structural differences between the compounds of D2 and those on file, D2 is not considered relevant to the evaluation of an inventive step.

Miscellaneous

The following clarity objections will be pursued upon entry in the European regional phase:

(i) The meaning of the expression "physiologically functional derivatives" used throughout the claims is an open-ended expression that leaves undefined the matter for which protection is sought, contrary to Art.6 PCT.

(ii) the dependency of claim 2 is incomplete.